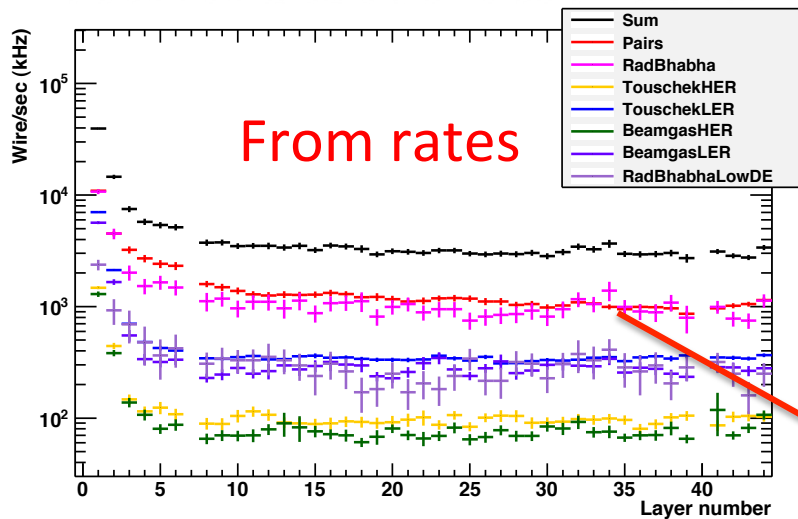


*On the DCH sensitive
time window*

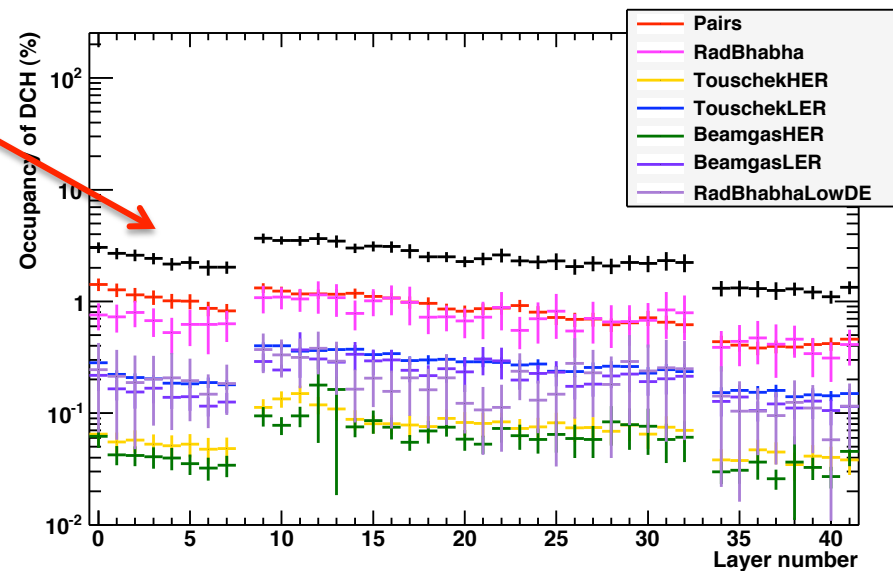
G. Finocchiaro, C. Gatti
INFN – LNF

6th SuperB Collaboration Meeting
LNF Dec 2012

Relevant for the background evaluation



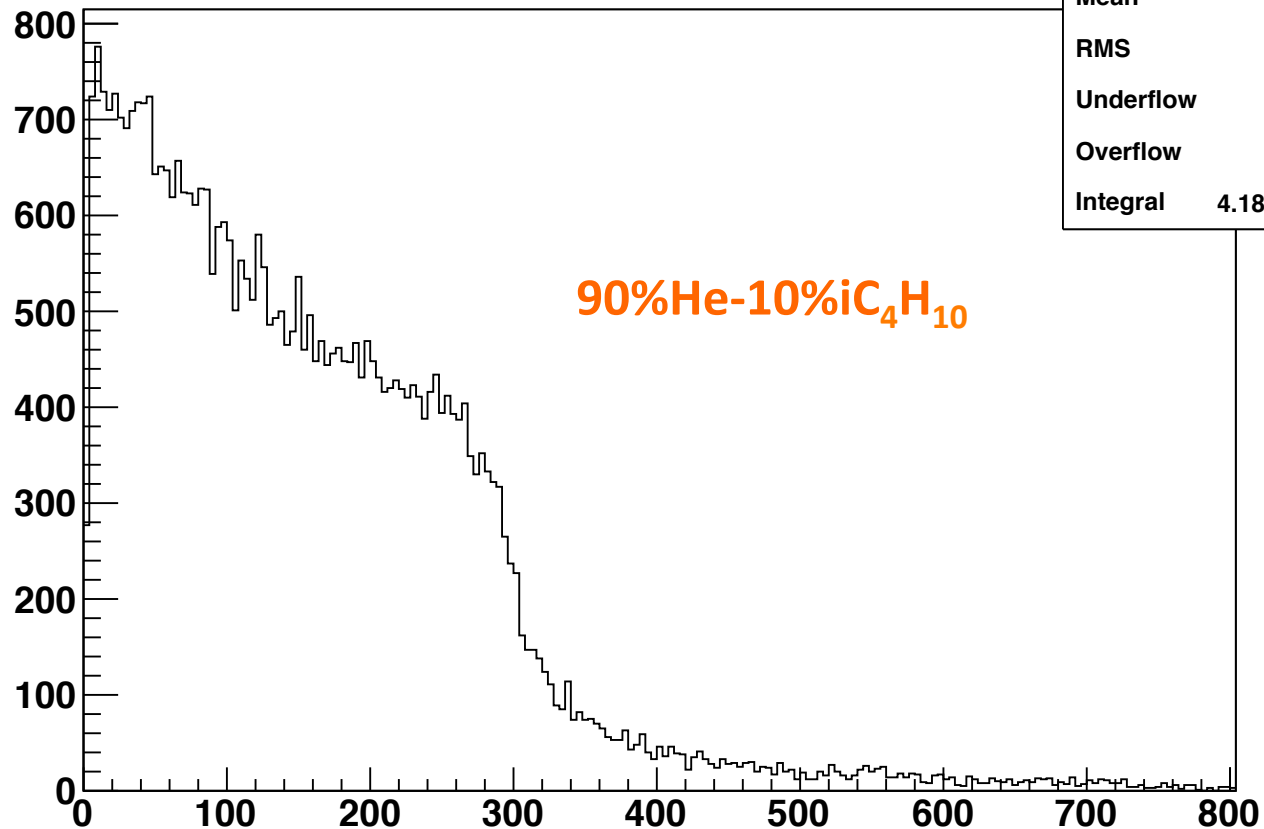
...to occupancies:
of cells in each layer
active time window (1μs)



- Few percent occupancy if marginal if x5 safety factor to be applied
- Is 1μs a consistent value to use?

Drift time from tracks in prototype 2

t_{drift} Ch12 corrected



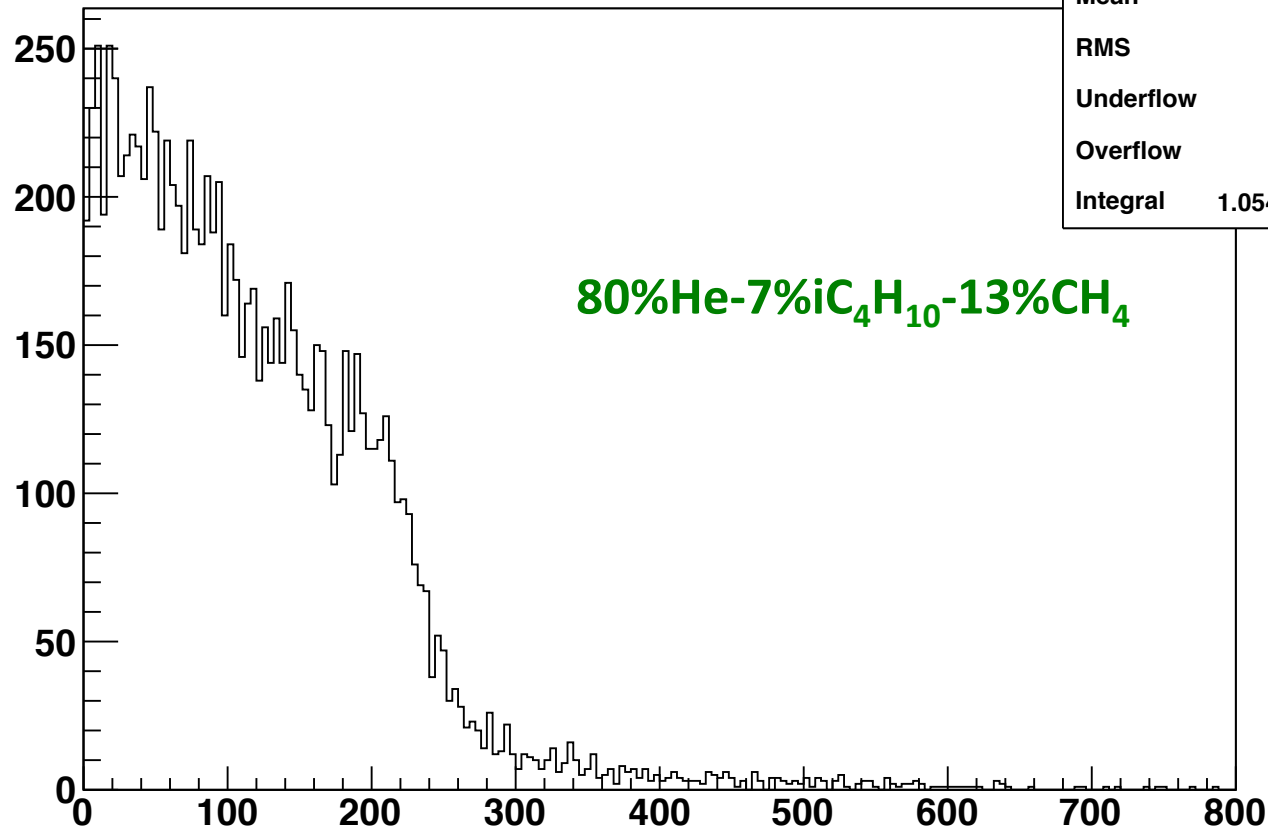
Entries	42178
Mean	156.3
RMS	120.3
Underflow	110
Overflow	0
Integral	4.183e+04

t_{max} [ns]	frac [%]
800	100.0
400	96.4
300	90.1
250	80.2

Time of 1st electron in prototype 2 (14mm side cell)
for 10-degrees tracks, $\mathbf{B=0}$ @ M11

Drift time from tracks in prototype 2

t_{drift} Ch12 corrected



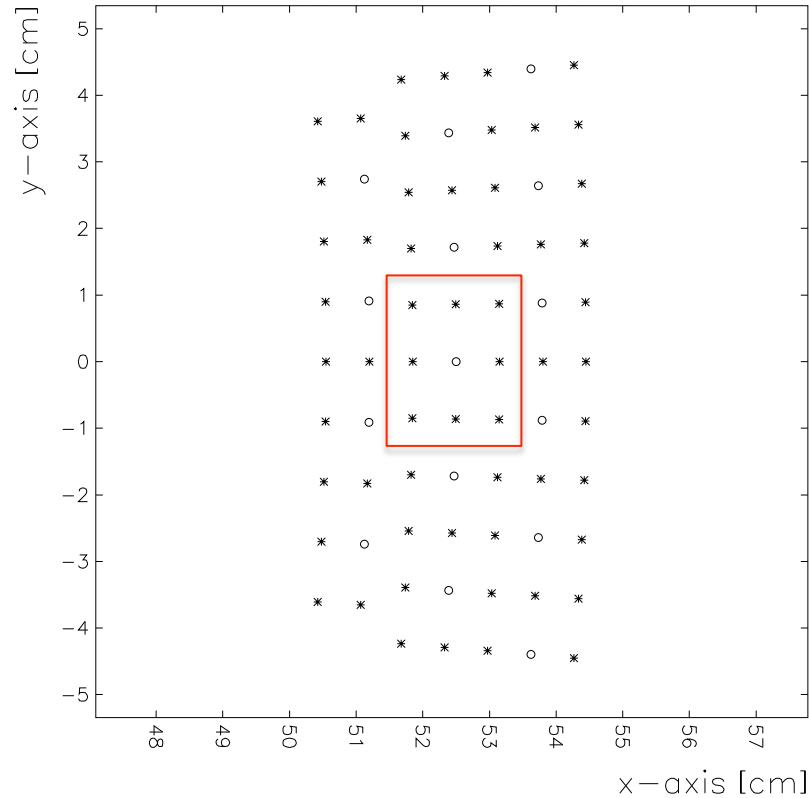
Entries	10825
Mean	117.8
RMS	91.7
Underflow	223
Overflow	0
Integral	1.054e+04

t_{max} [ns]	frac [%]
800	100.0
400	98.6
300	96.7
250	94.2

Time of 1st electron in prototype 2 (14mm side cell)
for 10-degrees tracks, $\mathbf{B=0}$ @ M11

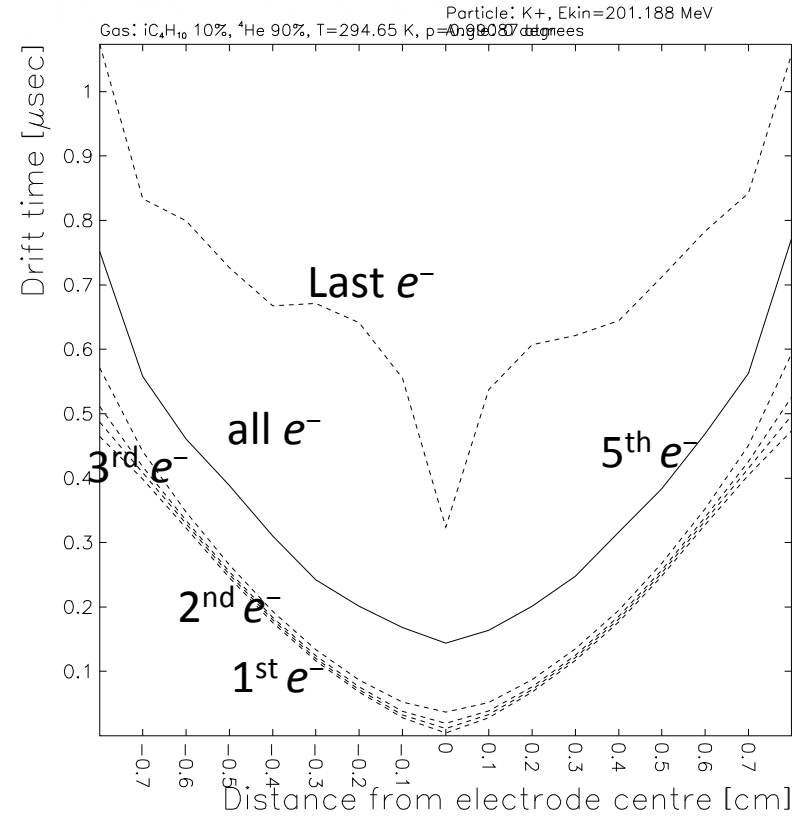
B=1.5T SuperB DCH big cells

LAYOUT OF THE CELL



Plotted at 09:57:00 on 06/12/12 with Garfield version 7.40.

Average arrival times for wire 5

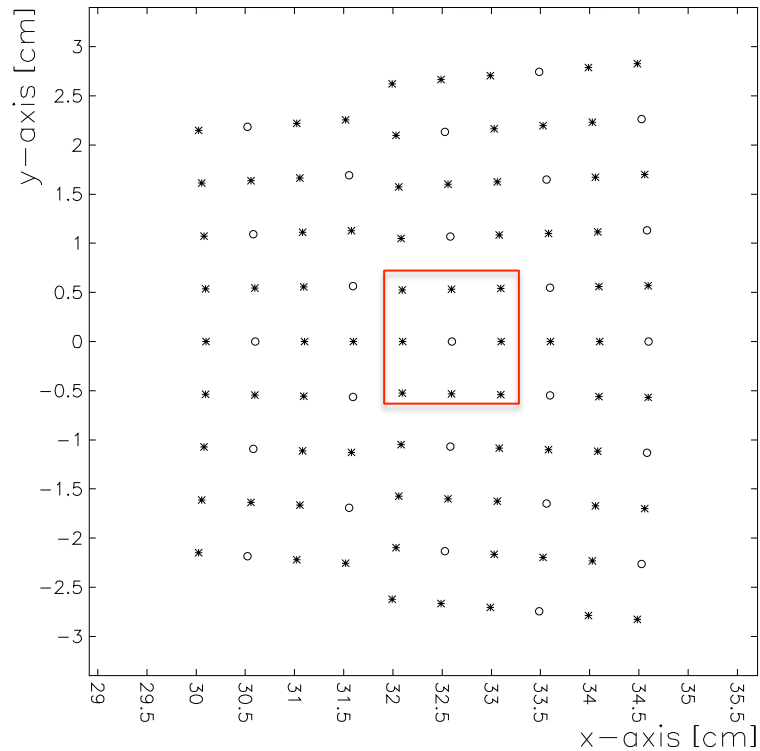


Plotted at 10:22:14 on 06/12/12 with Garfield version 7.40.

On average, in a “big” SuperB DCH cell operated in a 90%He-10%iC₄H₁₀ mixture and immersed in a 1.5T magnetic field the **1st e⁻** arrives within 400ns, the average of all e⁻ within 700ns

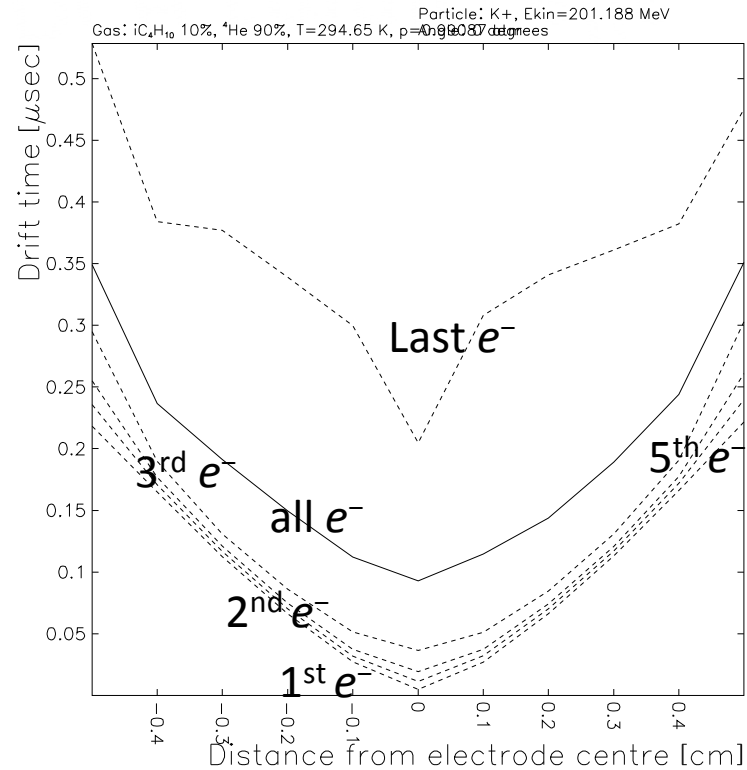
B=1.5T SuperB DCH small cells

LAYOUT OF THE CELL



Plotted at 10.06.24 on 11/12/12 with Garfield version 7.40.

Average arrival times for wire 10



Plotted at 10.19.53 on 11/12/12 with Garfield version 7.40.

On average, in a “small” SuperB DCH cell operated in a 90%He-10% iC_4H_{10} mixture and immersed in a 1.5T magnetic field the **1st e^-** arrives within **170ns**, the average of all e^- within 330ns

What time window should we use?

